Industry Careers and Job Packages

Session 1: Opportunities in Industry

March 12, 2014

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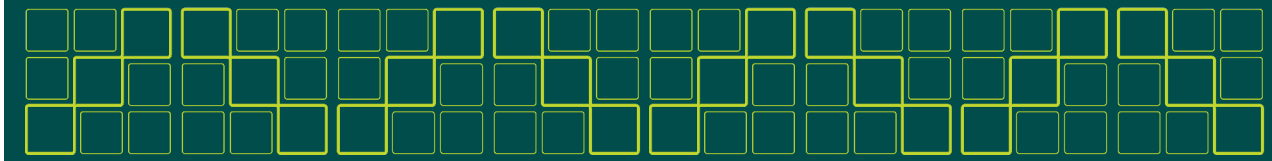


Scientific Opportunities in Industry

Session 1: Opportunities in Industry

- An industry overview and examining how changes in the health care market may impact opportunities in industry and academia
- Creating your industry resume

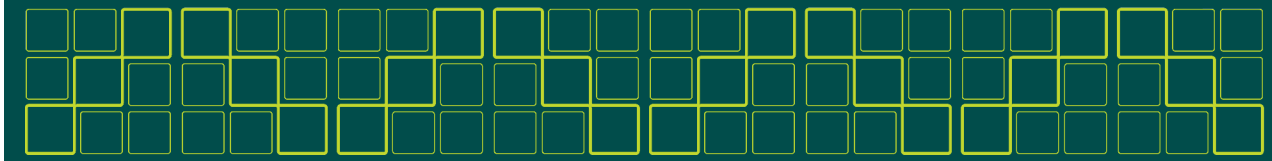
Session 2: Interviewing

- What to expect and who is involved in the interview process

Session 3: Negotiating the offer and making the transition

- Tips on negotiating the best possible offer
- Making the transition into your new role

Scientific Opportunities in Industry



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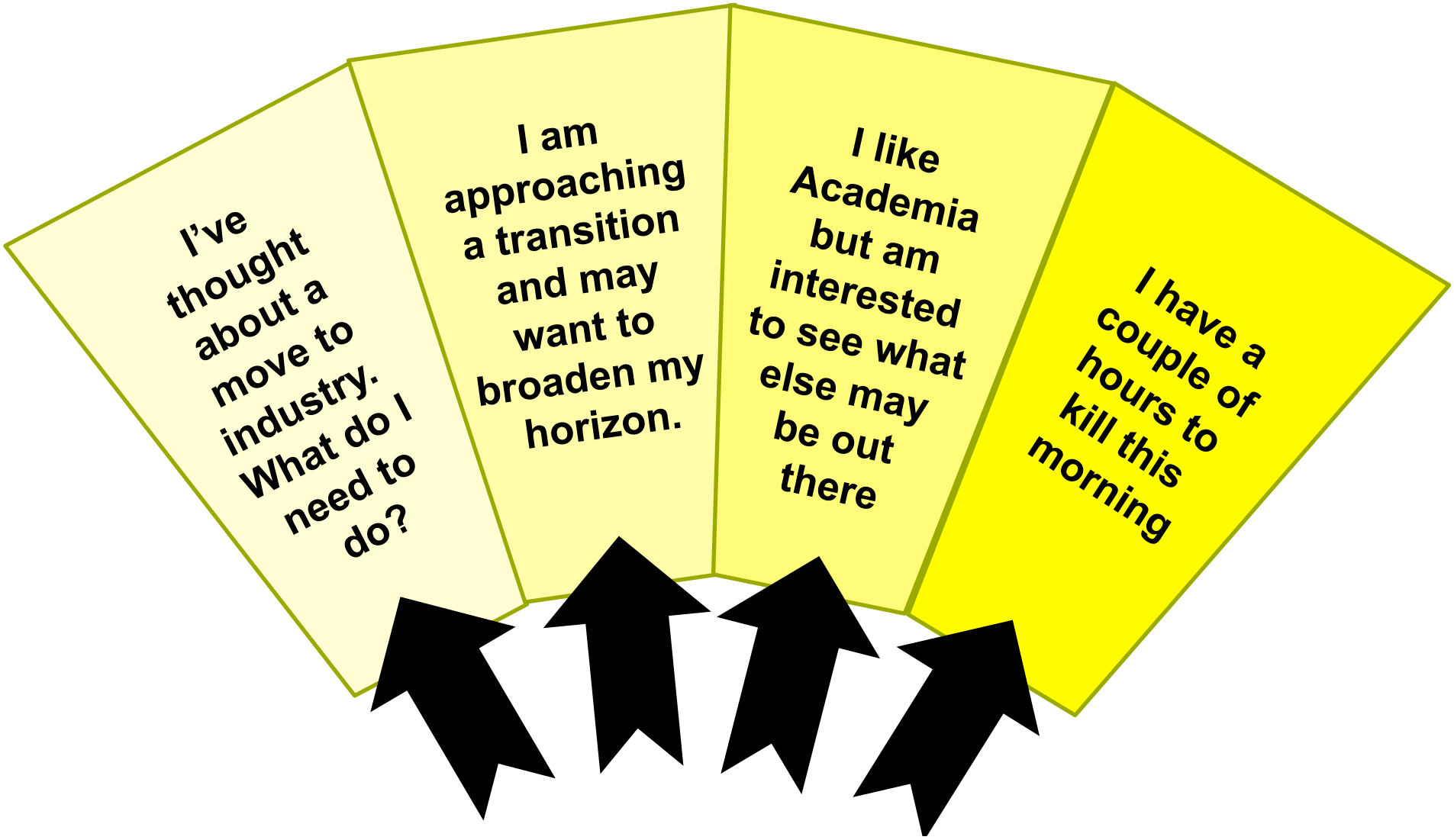
The Audience Meter

Why Am I Here?



Agenda

- **The business of health care**
  - Industry
  - Academia
- **An industry in change**
  - Historical perspective
  - 2013 and beyond
- **The impact on employment**
- **How do I get started?**
  - Creating an industry resume

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What is Industry?

A Broad Definition

Pharma / Biotech Manufacturers

- Branded
- Generic / Bio-similar
- Bio-defense

Medical Device Manufacturers

- Diagnostics / Bio-marker Developers

Service Providers

- CRO
- Regulatory
- Marketing / analytics
- Other

Consumables Companies

- Lab equipment
- Chemicals / Reagents
- Other

Health Insurers / Payers

Venture Capital / Banking

Government Agencies

- CDC
- DoD
- FDA
- NASA
- NIH
- NIST
- USDA

Global Revenue Estimates

Industry	Est. 2012 Revenues
Pharmaceutical Industry	800 B USD
Biotech Industry	250 B USD
Medical Device	300 B USD
Life Science Tools and Reagents	42 B USD
Contract Research Organizations	24 B USD
Total	~1.4T USD

Source: Global industry publications

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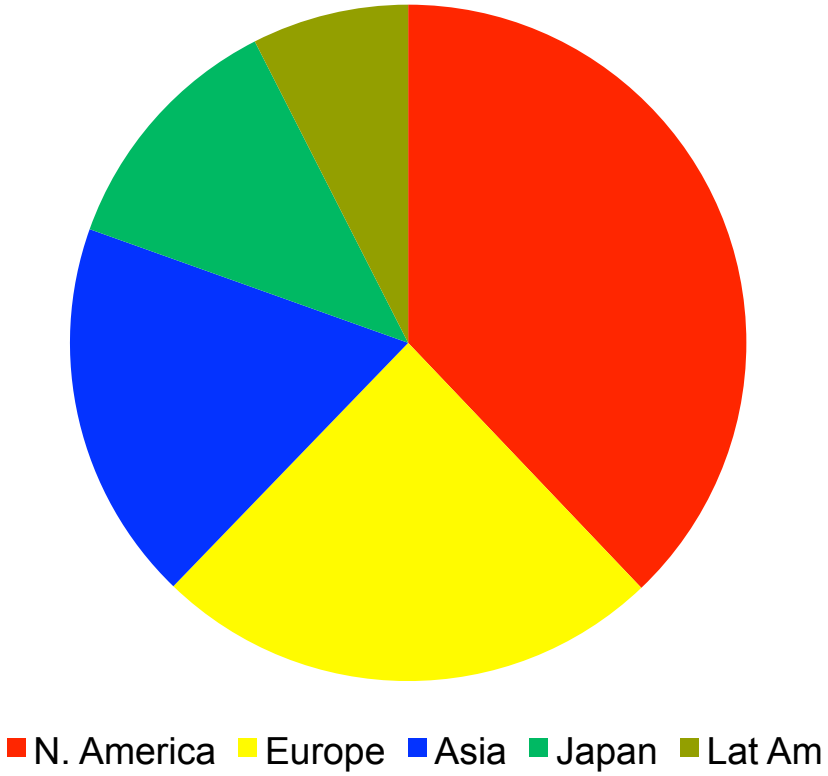
Global Pharma Sales 2012

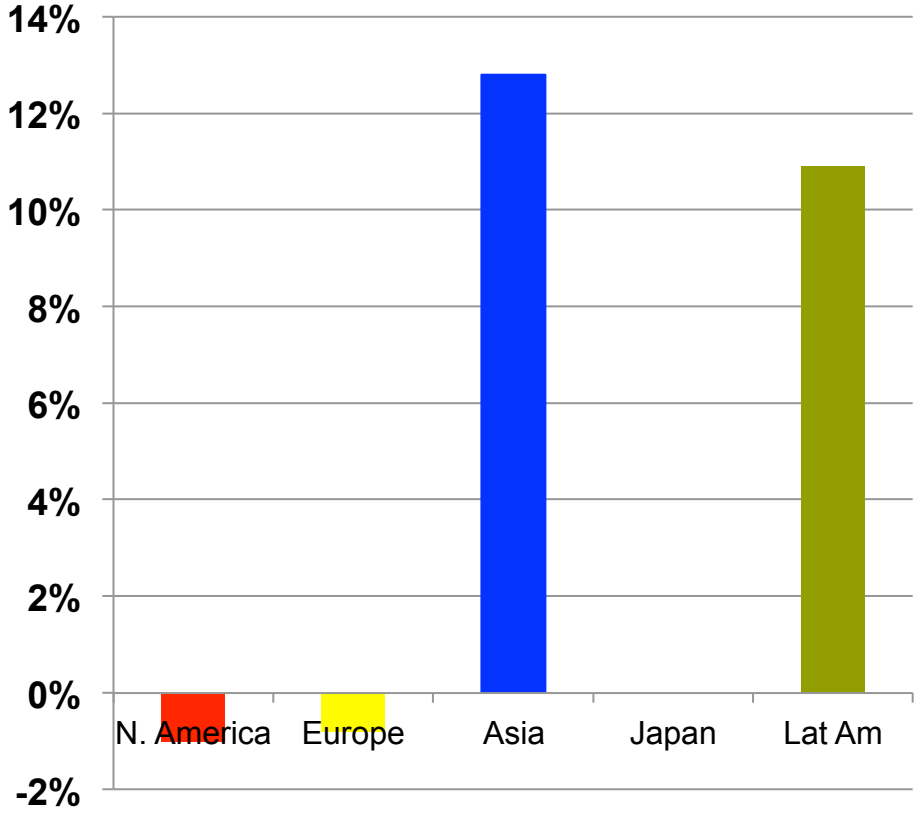
By Region

Sales by Market



Total = 959 B USD

% Change from 2011



Global Growth = 2.4%

Source: IMS Health

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Top-Ten Industry R & D Expenditures
2012

	Pharma*				Biotech				Med Device	
1.	Roche	$10.2B	21.0%	1.	Amgen	$3.4B	20%	1.	Siemens	$1.7B
2.	Novartis	$9.3B	16.5%	2.	Gilead	$1.8B	18%	2.	J&J	$1.7B
3.	Merck	$8.2B	17.3%	3.	Celgene	$1.7B	32%	3.	Medtronic	$1.6B
4.	Pfizer	$7.9B	13.3%	4.	Bio-Id	$1.3B	32%	4.	Phillips Hlth	$1.0B
5.	J&J	$7.7B	11.4%	5.	Shire	$1.0B	22%	5.	Roche	$1.0B
6.	Sanofi	$6.3B	13.7%	6.	Vertex	$.8B	62%	6.	Boston Sci	$.9B
7.	GSK	$6.3B	15.0%	7.	Regeneron	$.6B	72%	7.	Abbott	$.8B
8.	Lilly	$5.3B	23.4%	8.	Actelion	$.5B	28%	8.	St. Jude	$.7B
9.	A-Z	$5.2B	18.7%	9.	Onyx	$.3B	450%	9.	Covidien	$.6B
10.	BMS	$3.9B	22.2%	10.	Bio-Mar	$.3B	60%	10.	Danaher	$.5B
		$70.3B				**$11.8B**				**$10.5B**

*** Total pharma industry, $135B 18.8% of sales**

Source: **Fierce Publications**
Figures shown are global R&D expenditures and % of total global sales shown in USD

Pharma / Biotech Employment

2012

	Est. Jobs
China	1,300,000
US	650,000
Europe	650,000
Japan	250,000
ROW	80,000
	~2.9 Million

It is estimated that 30% - 40% of the pharma jobs are in R & D positions

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Academia

Is a Science Ph.D. a Waste of Time?
New York Times: August 31, 2012

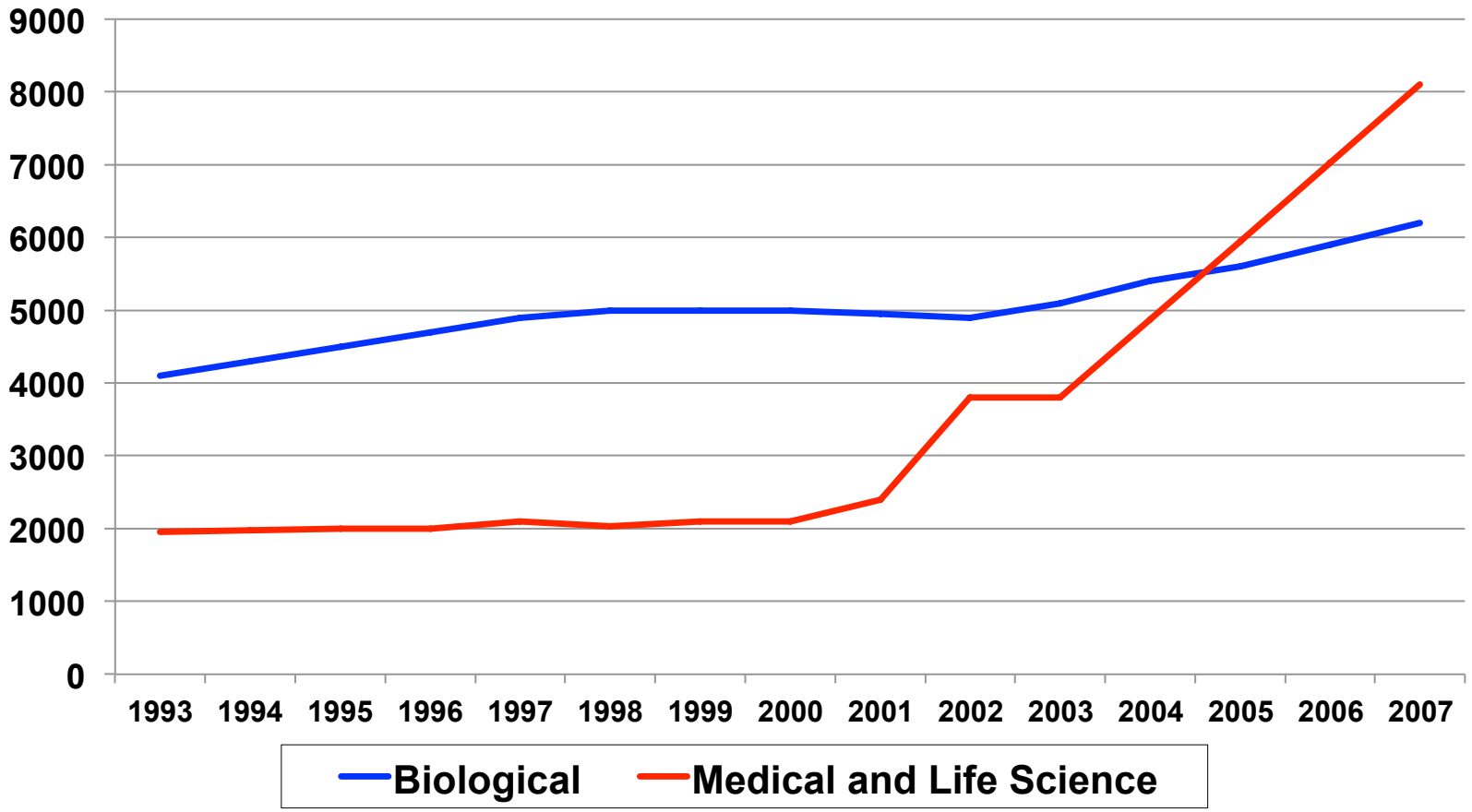
Are our universities producing too many PhDs?
Trends in Genetics: 1999

U.S. pushes for more scientists, but the jobs aren't there
Washington Post: July 7, 2012

12 reasons not to get a PhD
CBS Moneywatch: July 10, 2012

Does the U.S. Produce Too Many Scientists?
Scientific American: February 22, 2010

PHDs Awarded in the US



Source: Nature April 2011

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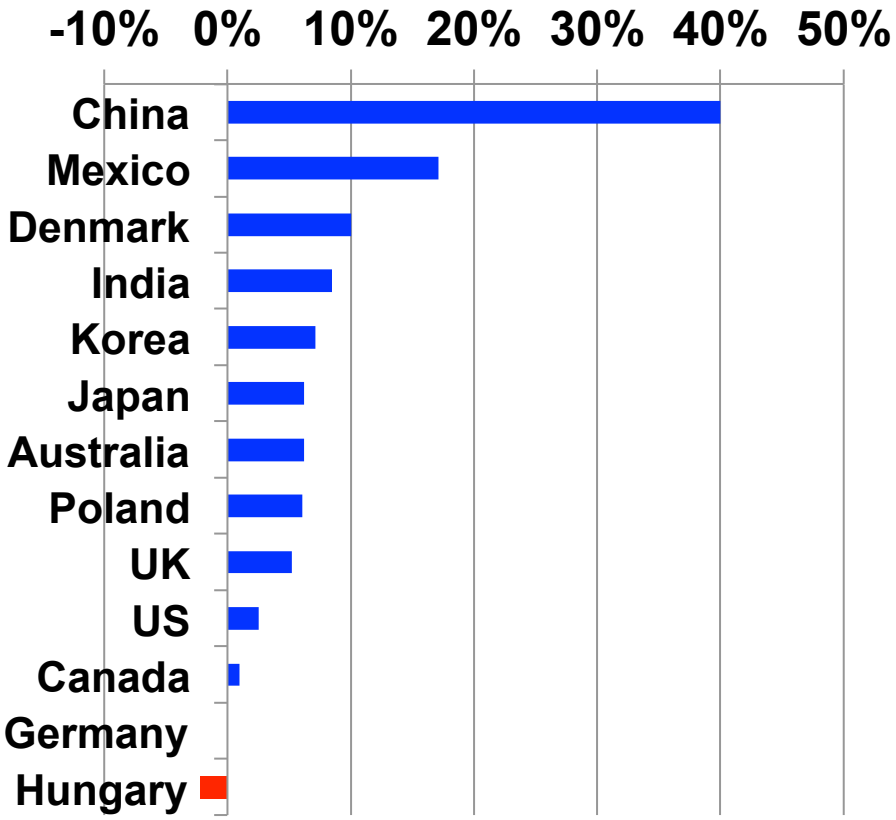
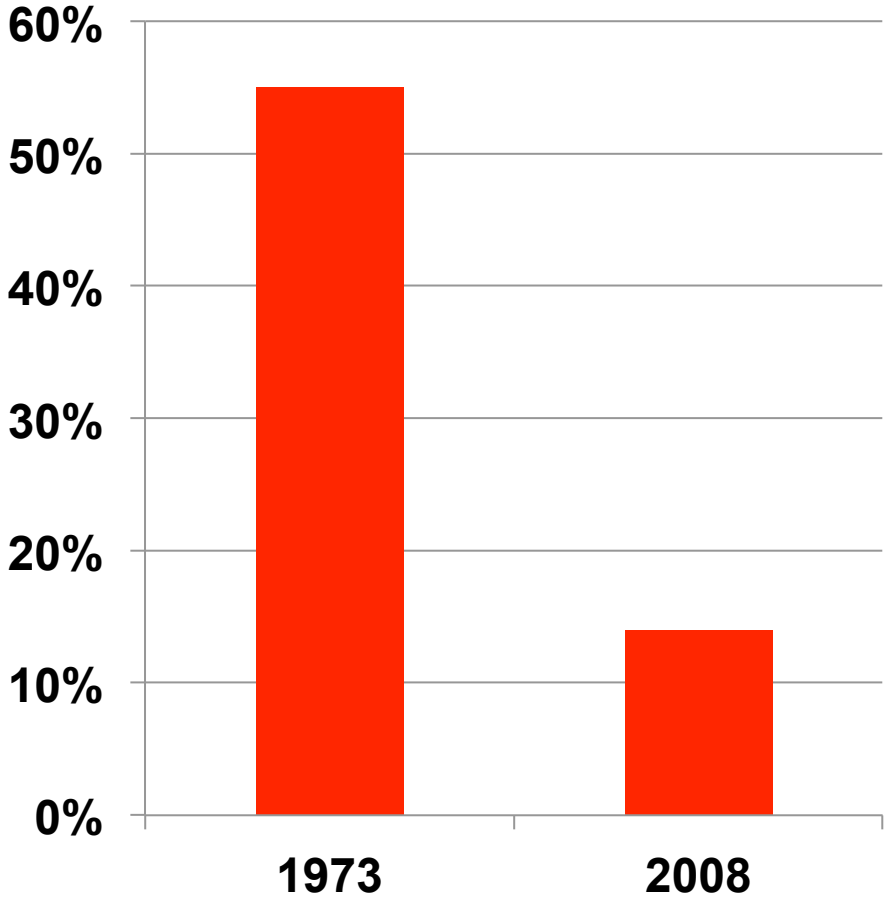
Too Many PHD's?

% Increase in Doctorates Issued
1998 - 2006



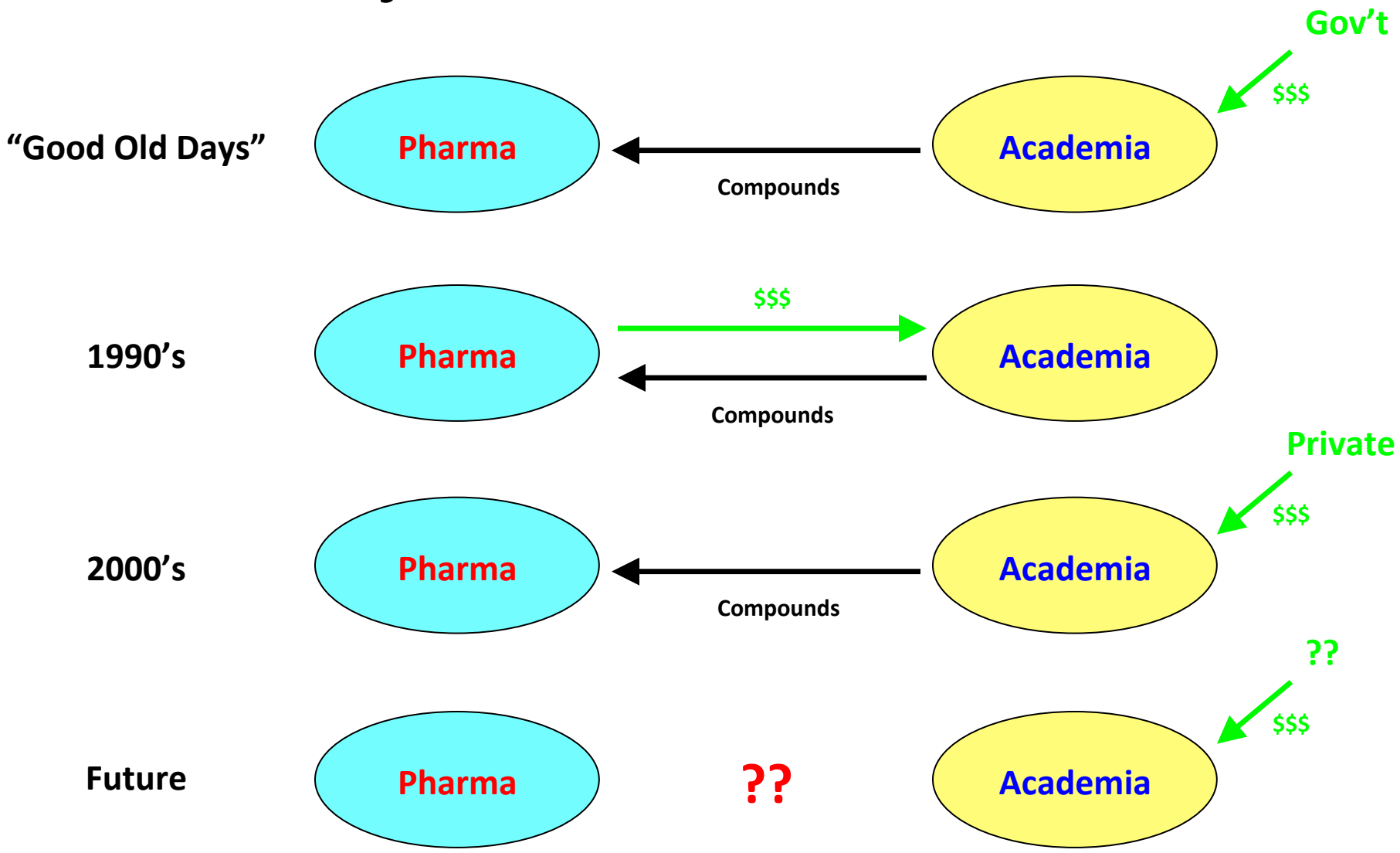
Source: Nature April 2011

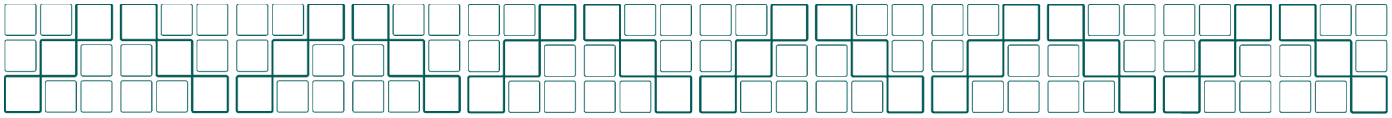
% with Science PHD's in Academic Tenure-track Positions



Source: National Science Foundation

The Industry Academic Connection





The Pharmaceutical Industry 2007 - 2012

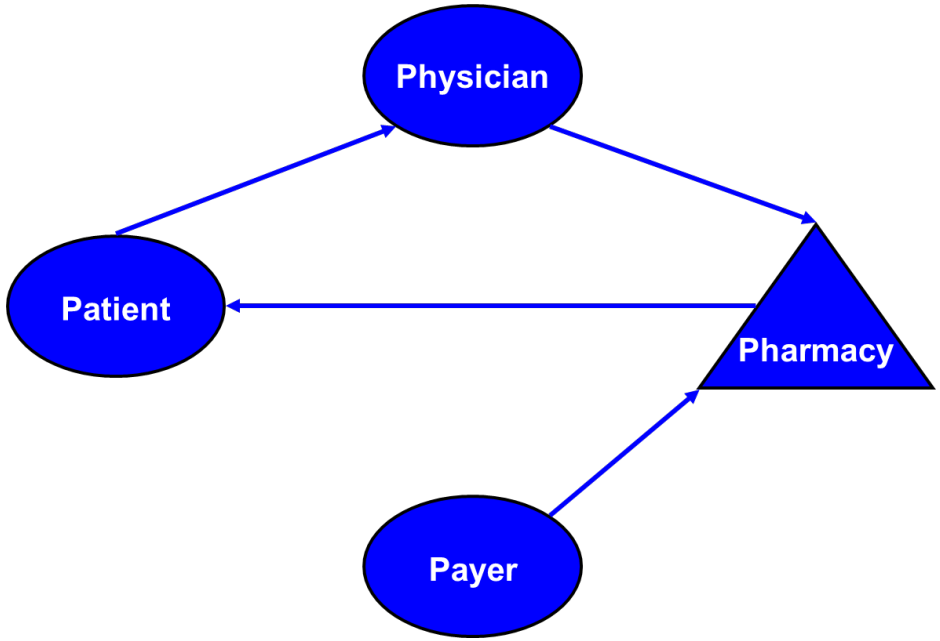
Pharma Industry Downsizing

- Between 2007 and 2012 the pharmaceutical and biotech industries have been among the hardest hit with nearly 500,000 job losses

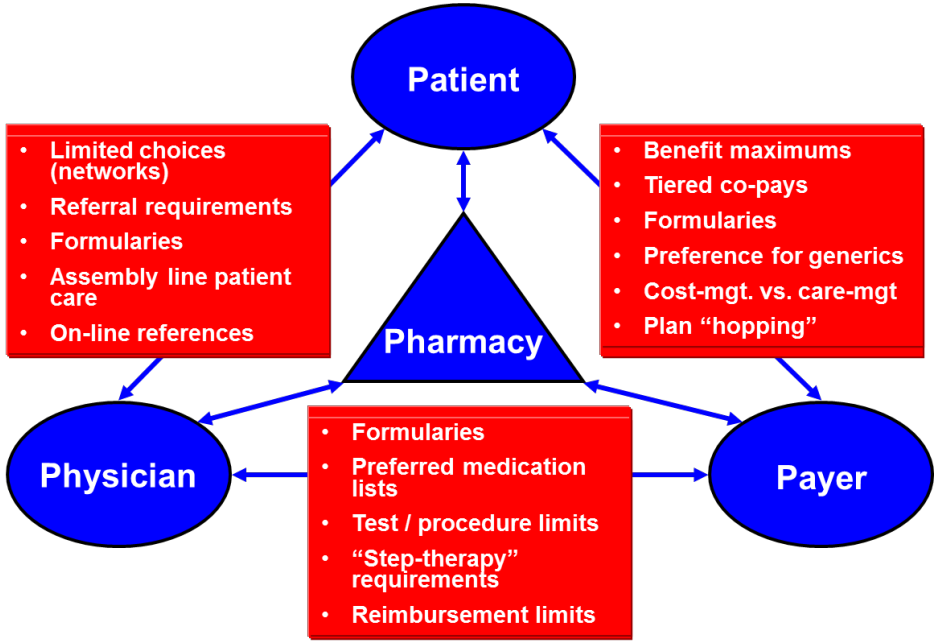
- Unlike in past downturns, job losses have been relatively equally divided among marketing, sales and R & D.

The Market Place

1980's



Today



Pharmaceutical Strategies

1980 - 2010

- **Search for "blockbuster" products**
  - Large and diverse R & D organizations
  - Active in-licensing organizations
  - Mega marketing and sales organizations and budgets
- **Industry consolidation**
- **Funding for discovery projects**

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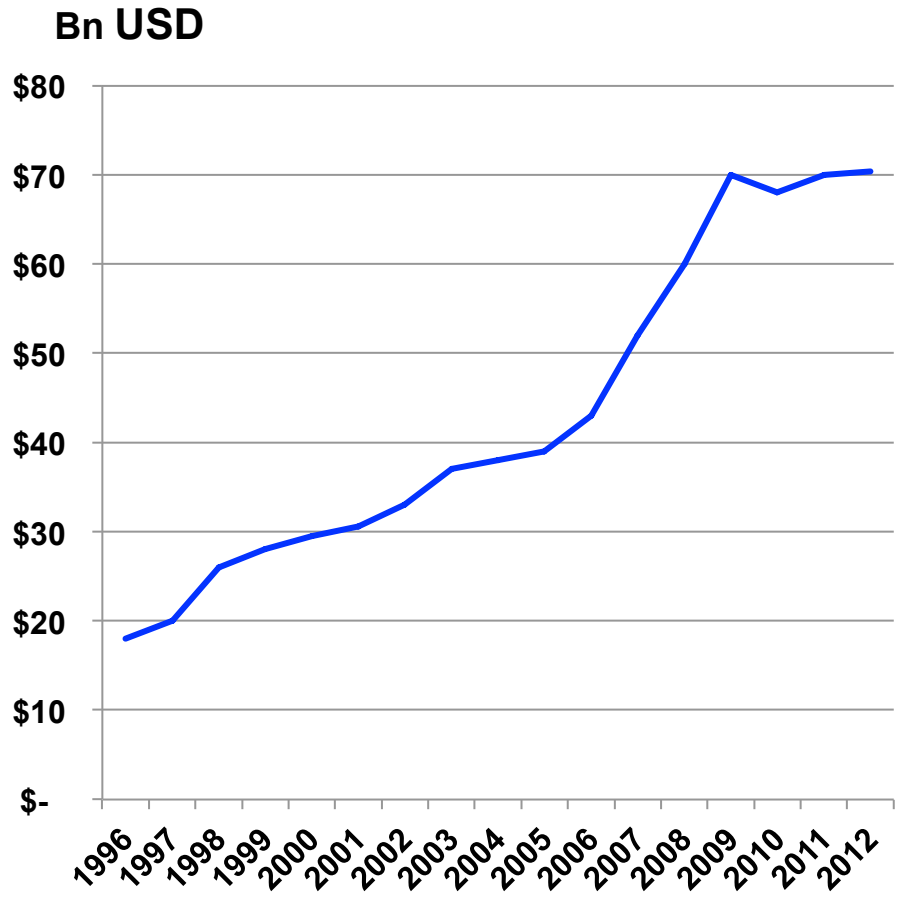
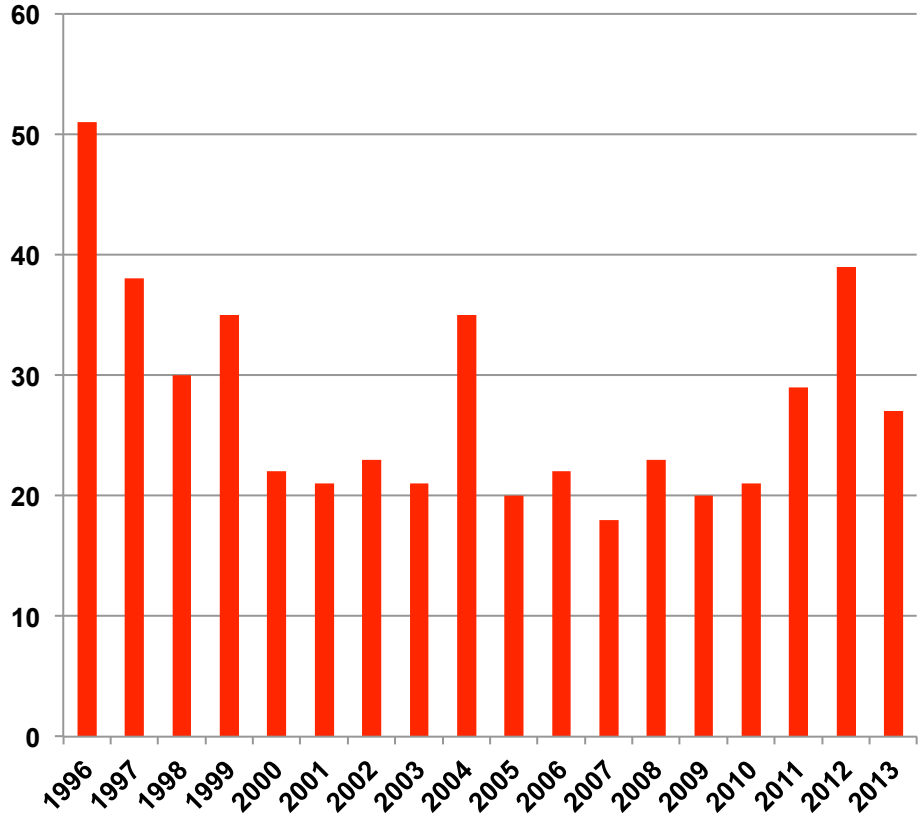
US R&D Productivity



US Pharma R&D Spend

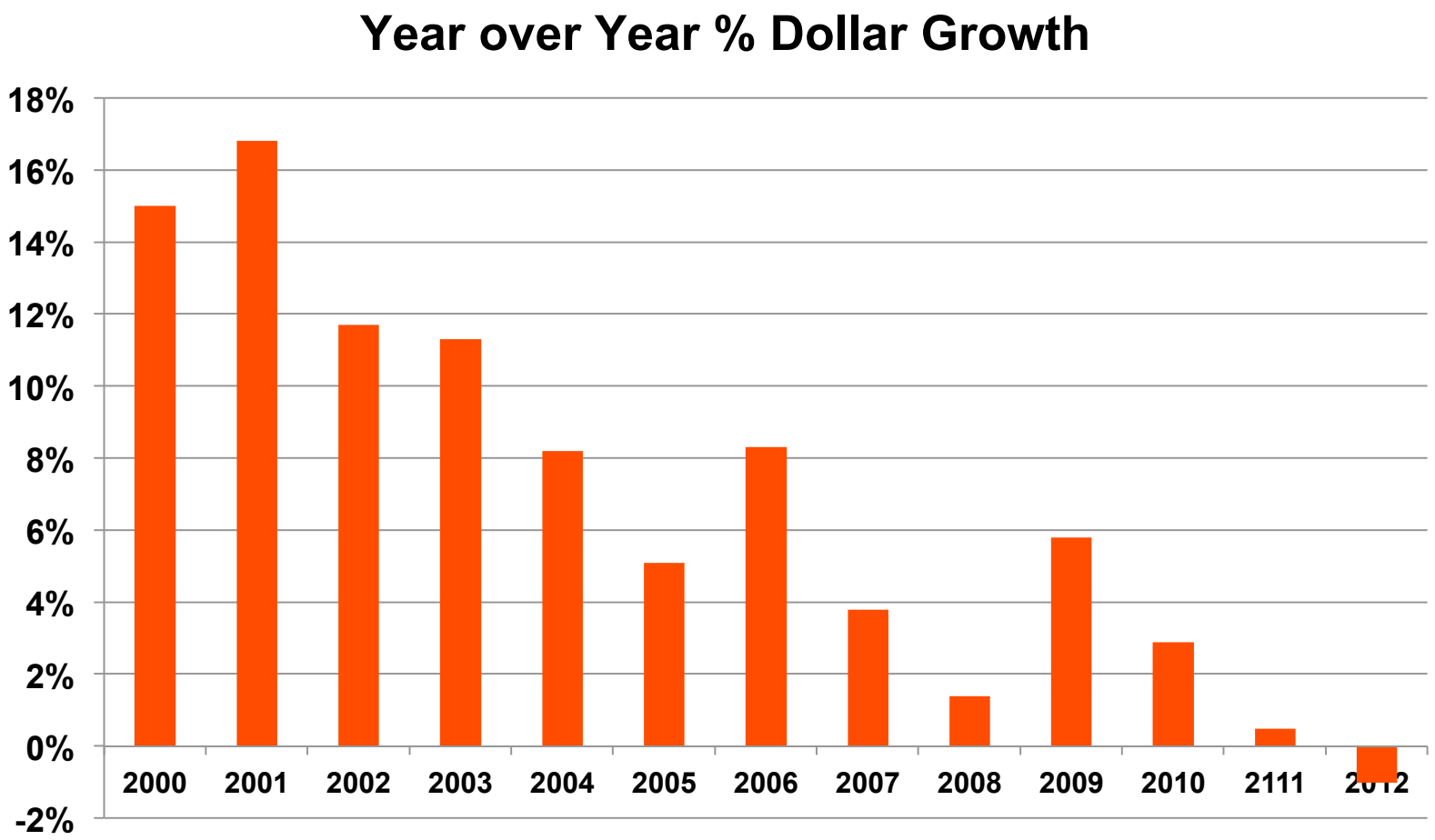
Source: Reuters



FDA NCE Approvals

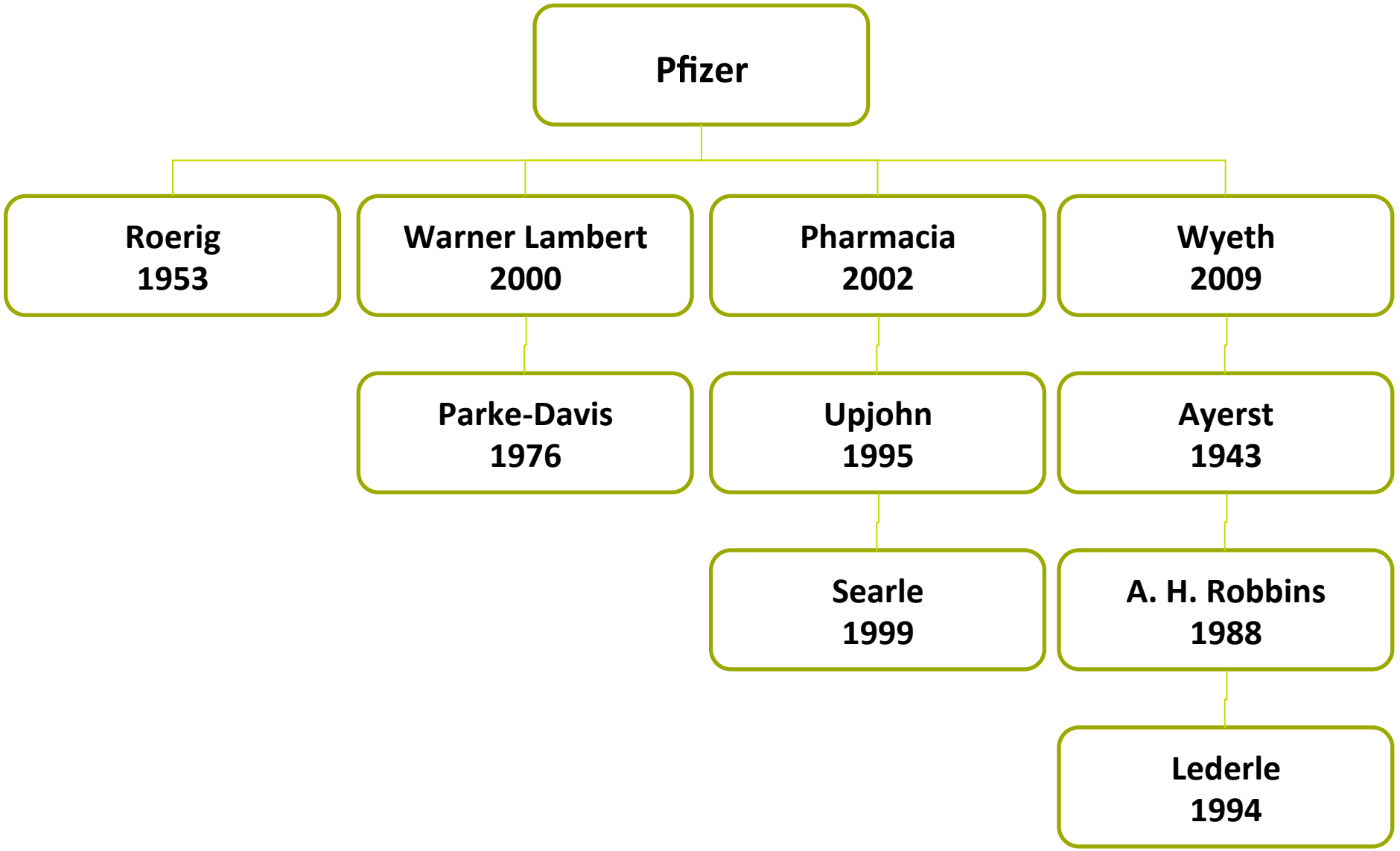
Source: FDA.gov

US Prescription Sales



Source: IMS Health

Building a Mega-company



Some Perspective

	1988	2006	Annual Growth Rate
Total Industry Representatives	35,000	106,000	21.6%
	1990	2006	Annual Growth Rate
Physicians	615,000	910,000	5.2%
	1985	2000	Annual Growth Rate
Life Sciences PhD's	~5,000	~8,100	10.8%

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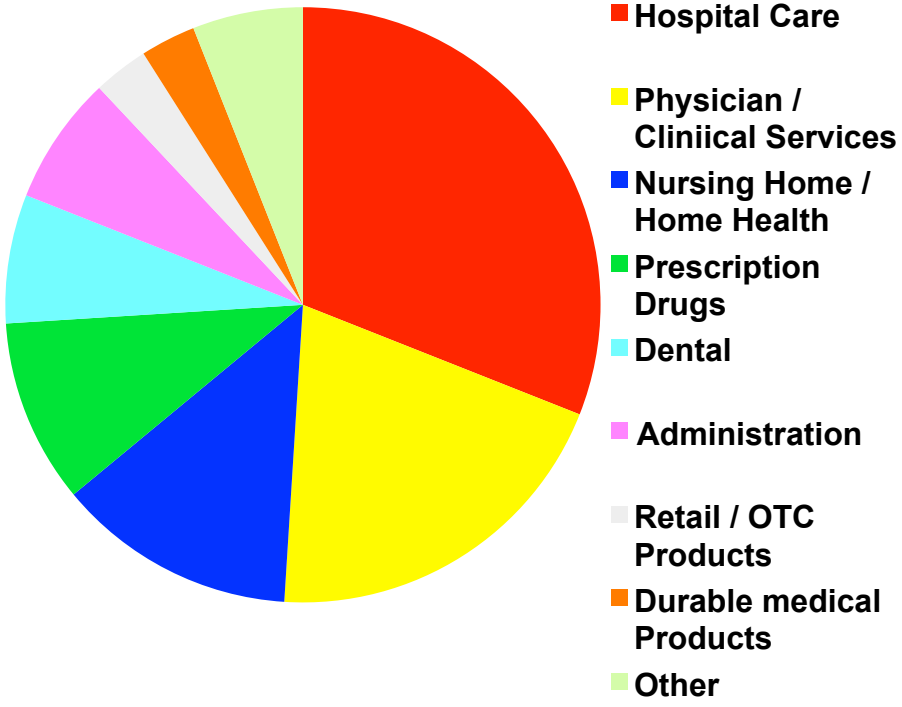
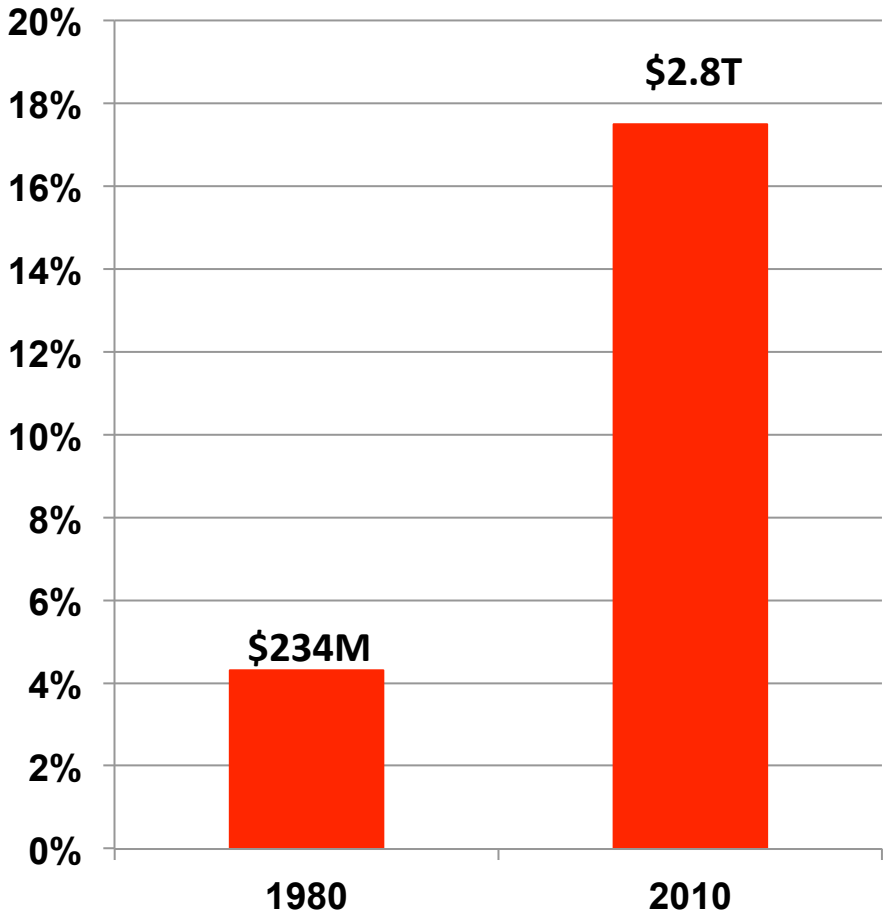
2012 US Health Care Costs

$2,804,000,000,000



Per Cent of US GDP



Source: Kaiser Foundation

Impact on the Pharmaceutical Industry

1. Increased development costs necessitated greater and more timely pay-back from marketed products, driving more intense market competition
   - Cost synergies and development efficiencies form industry consolidation have largely been unrealized
   - Increased promotional spend through traditional channels has produced declining returns

2. Increased individual contribution to the cost and lack of access to adequate healthcare have resulted an increased susceptibility to economic fluctuations
   - Physician visits are declining, even among those diagnosed with chronic illness
   - Annual prescription growth is at the lowest level since the 1960's

The Perfect Storm, 2007 - 2012

- Years of diminishing returns on both R&D and marketing
- Bloated and inefficient R&D organizations
- Rising healthcare costs with an increasing percentage in out-of-pocket spending
- Outmoded strategies for product development and marketing
  - Patent Cliff

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Patent Expirations 2013 - 2016

2013

Oxycntin	Purdue
AcipHex	Janssen
Zometa	Novartis
Xeloda	Genentech/Roche
Opana ER	Endo
Asacol	Warner Chilcott
Annual Sales:	**~$6B**

2014

Nexium	A-Z
Cymbalta	Lilly
Celebrex	Pfizer
Symbicort	A-Z
Lunesta	Sunovian
Restasis	Allergan
Evista	Lilly
Sandostatin LAR	Novartis
Actonel	Warner-Chilcott
Annual Sales:	**~$14B**

2015

Abilify	Otsuka
Copaxone	Teva
Gleevec	Novartis
Namenda	Forest
Provigil	Teva
Combivent	B-I
Zyvox	Pfizer
Prezista	Janssen
Avodart	GSK
Annual Sales:	**~$16B**

2016

Crestor	A-Z
Benecar	Diichi Sankyo
Cubicin	Cubist
Annual Sales:	**~$9.5B**

The Perfect Storm, 2007 - 2012

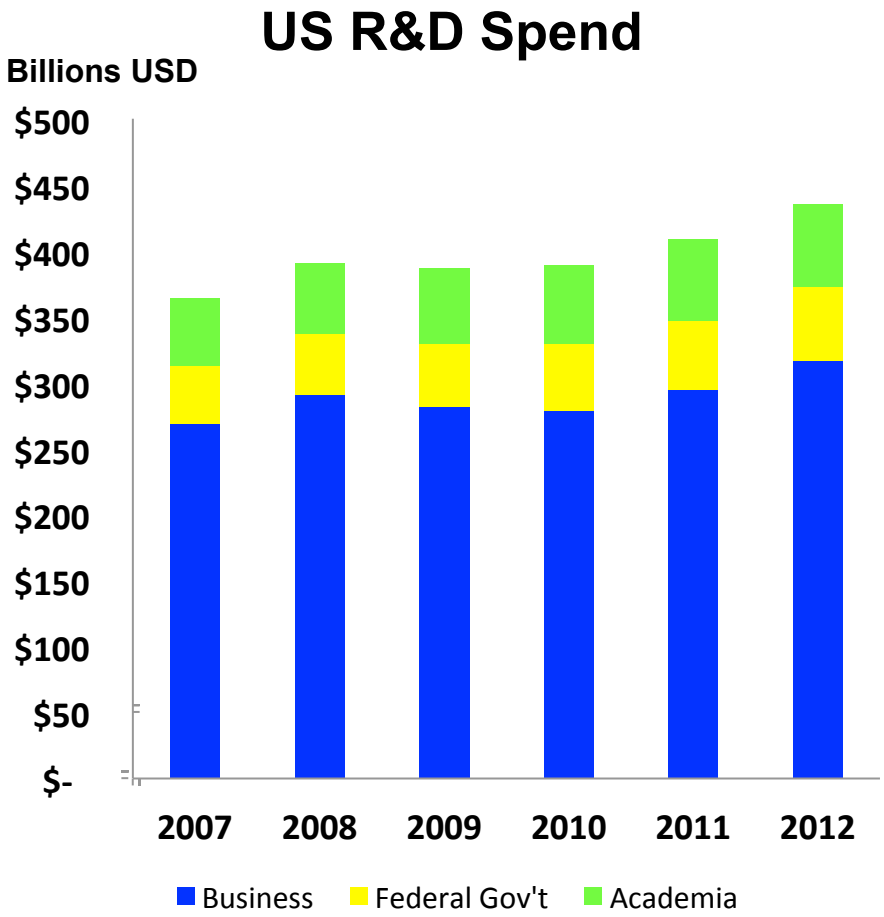
- Years of diminishing returns on both R&D and marketing
- Bloated and inefficient R&D organizations
- Rising healthcare costs with an increasing percentage in out-of-pocket spending
- Outmoded strategies for product development and marketing
  - Patent Cliff

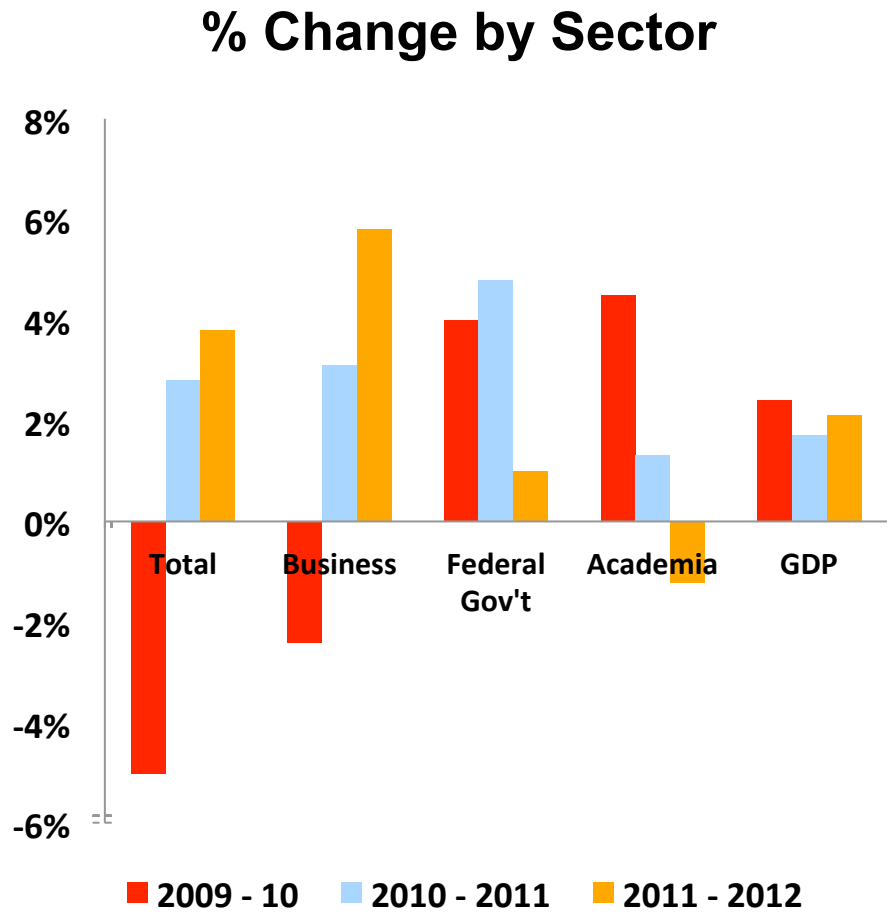
The economic situation has exposed a pharmaceutical industry model that is "broken"

Some Perspective

- Since 2007 the pharmaceutical and biotech industries have been among the hardest hit with nearly 500,000 job losses
- Unlike in past downturns, job losses have been relatively equally divided among marketing, sales and R & D.
- **Overall industry employment is down 5.8%**

Trends in US R&D Spending

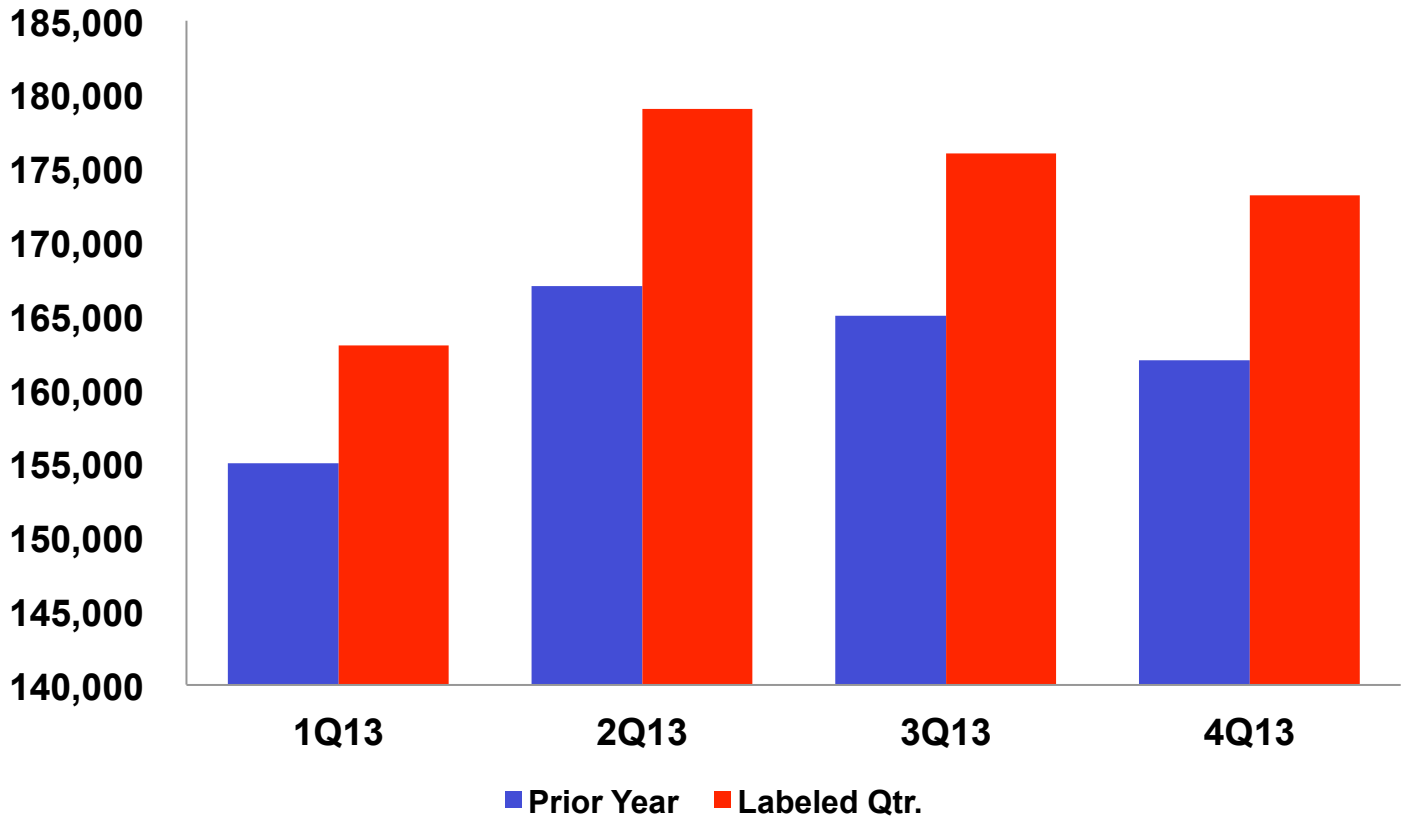




Source: National Science Foundation

Total Life Sciences Sector Postings

Year over Year (YOY)

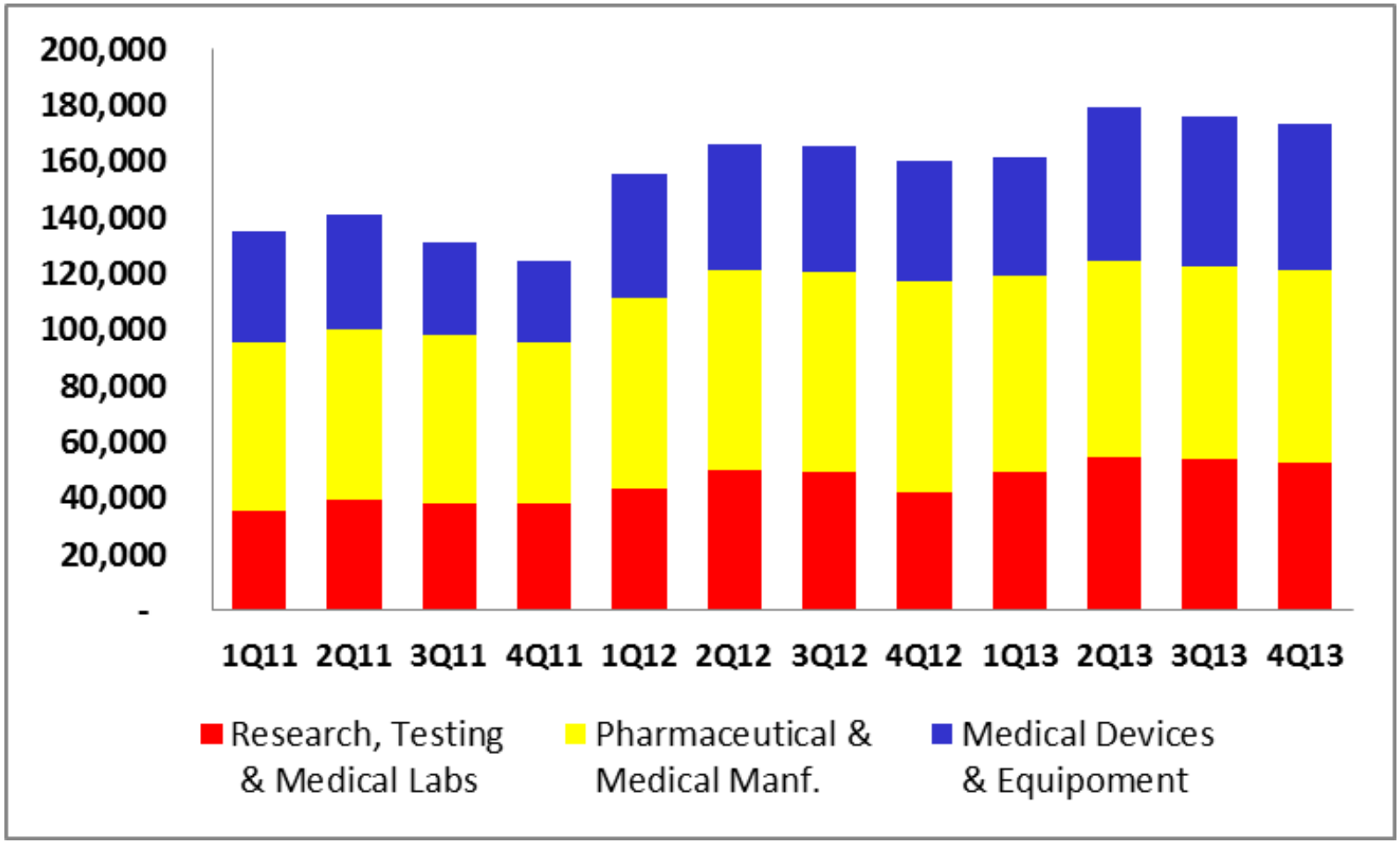


"Q413 represented both a 6.5% YOY gain and the best Q4 in over 4 years"

Source: Carlyle Conlan

Life Science Sector Postings

By Sub-category



Source: Carlyle Conlan

Where are the Jobs?

Mega-companies	Annual revenues greater than $10B 70,000+ employees worldwide
Large Companies	Annual revenues between $1B - $10B 2500 - 70,000 employees
Medium Companies	Annual revenues between $500M -$1B 100 - 2500 employees
Small Companies	Annual revenues between $100M - $500M 20 - 100 employees
Early Stage / Start-ups	Annual revenues between $0 - $100M 1 - 20 employees

Example Companies

	Mega	Large	Mid-size	Small	Early Stage/ Start-up
Pharmaceutical	Pfizer BMS GSK	Medimmune Teva B. I.	Endo Eisai Millennium	Macrogenics Purdue	Vanda
Biotech	Amgen	Celgene	Shire HGS	Vertex Alexion	Achillion GlycoMimetics NovaVax
Device	J & J	Baxter	Covidien	PPG	
Consumables	GE	Thermo Fischer Scientific	Life Technologies	Qiagen OriGene	
Contract Organization	Quintiles Covance	PPD	Accelovance	Westat	KAI Research, Inc.

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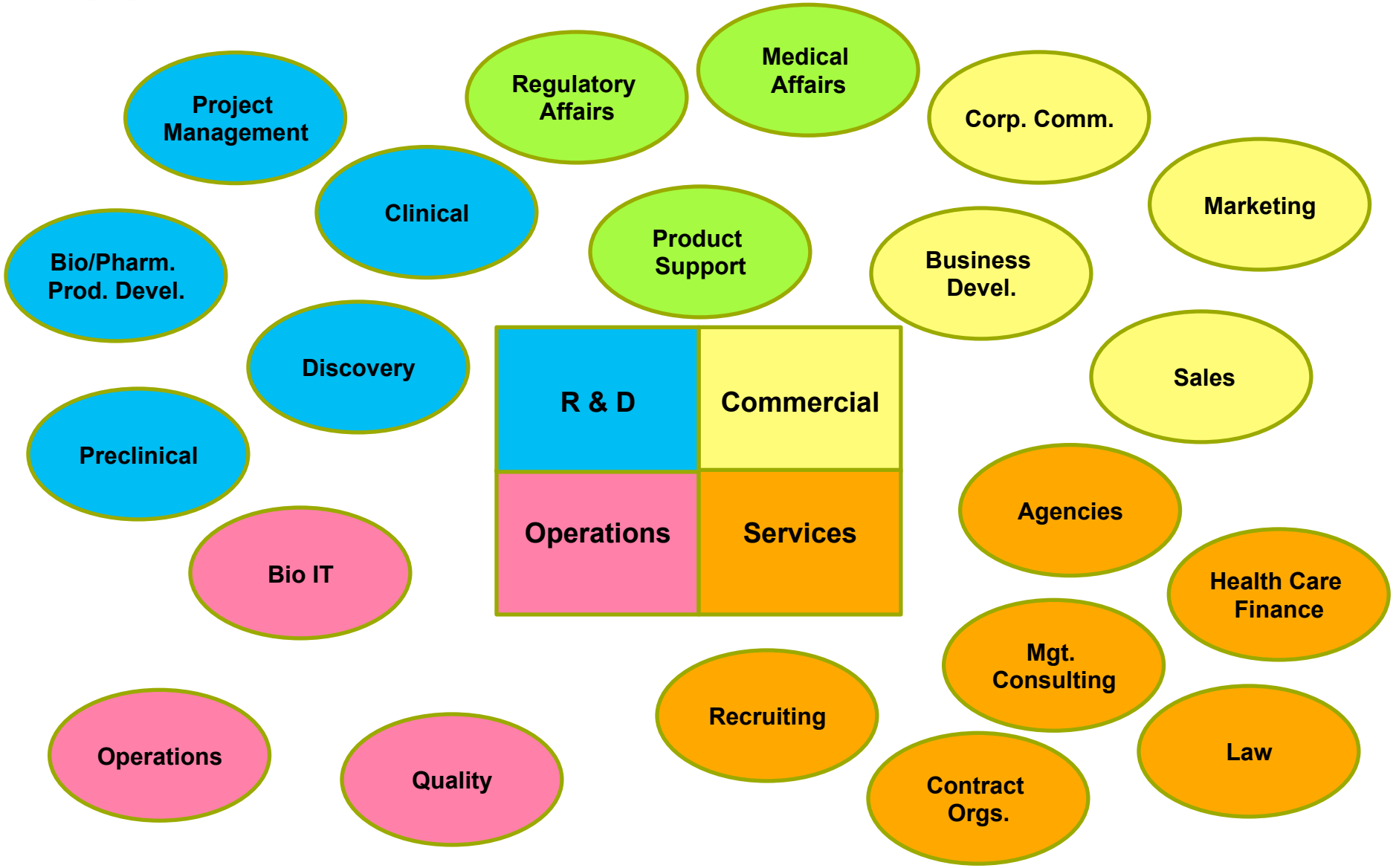
Opportunities in Pharma and Biotech



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Opportunities in R & D

Discovery	Drug discovery research; also positions in life sciences companies that provide platform technologies, instruments, reagents and medical devices. **Qualifications: PhD with some specialization in post-doctoral work**
Preclinical	Conduct research to identify, synthesize and characterize new drug candidates**. Qualifications: PhD with some specialization in post-doctoral work**
Clinical	Conduct research to test drug safety and efficacy in humans**. Qualifications: Involvement in clinical trial planning, protocol development or evaluation, execution and monitoring of clinical trials.**
Project Mgt.	Ensure that projects are moving forward according to pre-established timelines, scope and budget**. Qualifications: MD/ PhD with project management experience**
Bio-Pharm Product Devel.	Creating, formulating and manufacturing drug products. **Qualifications: PhD and formulation experience**

Opportunities in Commercial

Marketing	The development and communication of product strategic plans to achieve objectives. **Qualifications: BS/BA/MBA**
Sales	Interact with customers to generate revenues and provide education. **Qualifications: BS/BA and sales experience**
Business Development	Identify and consummate deals that further the company's strategy**. Qualifications: BS/BA/PhD in select therapeutic areas**
Corp. Comm.	Generate interest in a brand and faith in company's ethos. **Qualifications: Ability to "distill" technical information for a variety of audiences**

Opportunities Between R&D and Commercial

Product Support	Provide technical support to enable customers to use products correctly and successfully**. Qualifications: MD or PhD with product / therapeutic expertise**
Medical Affairs	Provide medical and scientific support for company's marketing effort. **Qualifications: MD, PhD or PharmD**
Regulatory Affairs	Ensure that discovery and development processes are consistent with regulatory processes**. Qualifications: MD or PhD with knowledge of Agency requirements**

Opportunities In Operations

Operations	Ensure smooth operations of all processes; manufacturing**. Qualifications: BA / BS or MBA, promotional position for those with advanced science degrees**
Bio IT	Systems validation, data management, algorithm and software development. **Qualifications: BA / BS with computer skills**
Quality	Ensure products are consistent and that all company processes comply with agency standards**. Qualifications: BS / BA, PhD is common in supervisory roles**

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Opportunities in Services

Virtually all functions within a company can also be outsourced to a contract provider; i.e. Development, Regulatory, Manufacturing, Medical Affairs, Marketing, Sales, Product Support, Legal etc. Qualifications: similar to those for the internal functions

Agencies	Discovery, research, development and regulatory responsibilities performed in Government supported labs**. Qualifications: MD or PhD**
Management Consulting	Provide strategic and technical advice to company management. **Qualifications: MD's and PhD's generally for technical and subject matter expertise**
Health Care Finance	Evaluate technologies to support or reject capital investment. **Qualifications: MD or PhD with a knowledge of business operations**
Recruiting	Match qualified candidates with job opportunities. **Qualifications: MD's and PhD's can be beneficial in recruiting for technical and scientific positions**

Research Positions

COMPANY: Achillion Pharmaceuticals, Inc.
POSITION: Director, Formulation Development
REPORTS TO Senior Vice President and Chief Compliance Officer

RESPONSIBILITIES : Guide the development of product formulations at all stages of development. Establish the physical form and properties of end products to meet development requirements. Conduct formulation development studies at the preclinical stage. Collaborate with R&D and Manufacturing in process and product specification. Supervise contract research and contract manufacturing organizations

CANDIDATE QUALIFICATIONS

PhD with a life sciences concentration. Several years' industry experience preferred. Liquid dosage experience. Technologically up-to-date with regard to the manufacture of insoluble drug formulations

COMPANY MacroGenics, Inc.
POSITION Process Development Manager (cell culture)
REPORTS TO Senior Director, Manufacturing

RESPONSIBILITIES:

Develop scale-up of bioreactor processes for mammalian cell culture

Analyze data and draft technical reports

Assist with drafting and revision of manufacturing batch records

Establish and maintain GMP standards in manufacturing operations

CANDIDATE QUALIFICATIONS

Master's degree in biochemistry, chemical engineering or related scientific discipline

Some relevant industry experience

Experience with bioreactor operations and process scale-up

Development Positions

COMPANY Achillion Pharmaceuticals, Inc.

POSITION **Clinical Development Director**

REPORTS TO Senior Vice President and Chief Medical Officer

RESPONSIBILITIES

Plan and execute human clinical trials in multiple therapeutic areas. Provide medical professional expertise in relations with clinical sites. Contribute to study design and protocol development. Monitor research execution at clinical sites. Monitor patient safety and respond to adverse events. Collaborate in data review and results evaluation and participate in regulatory interaction.

CANDIDATE QUALIFICATIONS

MD

Clinical trial experience

Relevant therapeutic specialization

COMPANY Achillion Pharmaceuticals, Inc.

POSITION **Director, Pharmacology & Pharmacokinetics**

REPORTS TO Senior Vice President and Chief Medical Officer

RESPONSIBILITIES

Provide clinical pharmacology expertise to the planning and execution of clinical development programs. Participate as a development team member in interaction with clinical sites and regulatory bodies. Contribute to study design and monitor implementation. Support data analysis, report writing and regulatory submissions

CANDIDATE QUALIFICATIONS

PhD or PharmD. A strong background in clinical pharmacokinetics, ideally in drug development, is highly desirable. Experience in design and analysis of human ADME and drug-drug interaction studies. Knowledge of pharmacokinetic simulation software

Business Positions

COMPANY Guilford Pharmaceuticals Inc.
POSITION: Vice President, Business Development
REPORTS TO: Senior Vice President, Corporate Development

RESPONSIBILITIES: **c**entrally responsible for establishing business partnerships and ensuring their successful operation. As such, the individual is an essential member of the closely collaborating management team. He or she is directly responsible for structuring the business development organization, evaluating the existing organization and consulting relationships, and providing it with leadership
CANDIDATE QUALIFICATIONS: Substantial business development background within the biopharmaceutical or pharmaceutical industry, ideally with significant out-licensing experience Demonstrated record of successful deal making, Technical fluency in the CNS therapeutic area and a knowledge of CNS markets. An advanced degree in a business or scientific discipline. Exceptional sales and relationship skills. Willingness to travel extensively

COMPANY MedImmune, Inc.
POSITION: Regional Director, Medical Affairs
REPORTS TO: Vice President, Medical Affairs

RESPONSIBILITIES: Function as medical professional link with field-based activities. Provide information to management about directions in patient care, unmet medical needs and research opportunities. Interact with thought leaders to shape company research and marketing strategies. Develop and manage company-funded fellowships at leading institutions. Identify opportunities to conduct post-marketing research. Design and administer protocols. Participate in the training of field sales representatives and product specialists.
CANDIDATE QUALIFICATIONS: M.D. preferred. Experience in designing, conducting and evaluating research. Specialization in pediatric and/or infectious diseases

Other Positions

COMPANY MedImmune
POSITION Director, Product Support
REPORTS TO: Vice-president, Scientific Operations

RESPONSIBILITIES: **P**rovide support to medical affairs, marketing, sales, and other professionals who were in direct contact with prescribers of the company's products in the healthcare provider sector. The position typically conducts research which is necessary to provide information in response to inquiries from the field. Typically, such inquiries go beyond the scope of the market communications program developed to support product marketing

QUALIFICATIONS: Advanced degree in a scientific discipline and, ideally, research experience in the pertinent therapeutic area, or with the particular class of drug. Excellent oral and written communications skills

COMPANY Achillion Pharmaceuticals, Inc.
POSITION **Formulation Development Executive**
REPORTS TO: Senior Vice President and Chief Compliance Officer

RESPONSIBILITIES: Providing the professional expertise and leadership to appropriately guide the development of company product formulations at all stages of development, from preclinical to commercial launch. The position plays a central role in establishing the physical form and properties of end products so that those products can be successfully developed and produced within regulatory, safety, efficacy, economic and other constraints**.**

QUALIFICATIONS: A PhD with a life sciences concentration is preferred, with several years' industry experience. The ideal candidate should have experience in the full range of development stages, from early phase formulation activities through transition to first-in-human studies

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Where the Opportunities Are Likely to Be

2014 - 2017

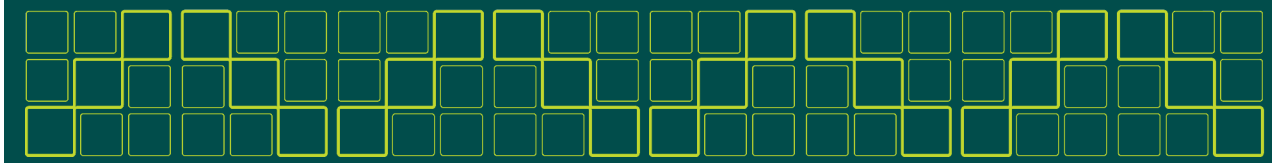
Research Positions	Predominantly in biotech and early-stage
Development Positions	Mid- to mega-companies and CRO's
Business Development	Out-licensing - Smaller companies and early-stage In-licensing - Larger companies
Medical Affairs	Larger companies with marketing and launch products
Regulatory Affairs	Mid- to mega-companies and FDA
Product Support	Larger companies with marketing and launch products
Quality	Companies with manufacturing and Contract Manufacturing Organizations
Management Consulting	Consulting companies, companies in transition and medical insurance providers

What do I do now?

1. **Foster your network of contacts outside of academia**
   - NIH Alumni database, Linked In
2. **Identify companies with money and/or cash infusions**
   - Fierce, BIO, OnBioVC
3. **Identify companies with R & D interests in your area of expertise**
4. **Identify key contacts for use as references**
5. **Prepare an industry resume (CV)**

Resumes & cover letters for industry

and other non-academic jobs



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Resumes

- Resumes vary based on the job ad
- Not the place for your life history, what you add needs to be based on the JOB
- Can be reverse chronological or functional
- Need to show RESULTS (not science results, but work-related results)

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Sections of a Resume

- Contact info
- ***Expertise Summary***
- ***Summary of Accomplishments***
- Professional experience
  - Research
  - Job related
  - Teaching/Mentoring
- Education
- ***Skills***
- Leadership
- Funding/Honors/Awards
- Service/leadership
- Publications/Patents (likely not posters)
- Invited talks (maybe)
- References (maybe)

Summary/Objective Statement

- Typically only for resumes
- First (and easiest) place to adjust for job ad

~~**Seeking a responsible position in an industry lab doing research.**~~

Expertise Summary

- Protein biochemist with 10 years of experience managing research and administrative tasks
  - 6 years experience in *in vitro* protein synthesis, including optimizing media contents for selective labeling and to improve growth
  - Strong expertise in enzymatic assays, including single turnover kinetics of DNA cleavage using biophysical techniques
  - 2 years experience in RNA biology creating RNA-protein complexes
  - Developed a postdoc association, led mentoring committee, was treasurer of graduate association
  - Strong attention to details as seen by success in both the lab and as a committee member
  - Excellent communication skills, experience in writing and speaking to technical and non-technical audiences

- Assume 4-6 bullets here on why YOU fit the job ad

Summary of Accomplishments

Focus on the *results* and/or *application* of your work

- Identified regulatory T cells as a diagnostic biomarker in experimental graft-versus-host disease with implications for improved clinical treatment of bone marrow transplant patients

- Identified markers with potential to be used to target cancer stem cells with metastatic and drug resistant properties in Osteosarcoma.

Developed Transgenic Mouse Model

- **Industry**
  - Developed a cystic fibrosis transgenic mouse model that resulted in 8 peer reviewed publications and $3.6 Million in grant funding.
- **Project Management**
  - Developed strategy and implemented 2.5 year $1.3 M project in collaboration with institutional core facility and external academic partner. Project resulted in $3.6 M in additional funding.
- **Regulatory Affairs**
  - In collaboration with institutional Animal Care and Use Committee (IACUC) and Biological Safety Committee submitted and gained all necessary documentation to develop transgenic mouse model for cystic fibrosis. Documents were completed 6 weeks ahead of schedule.

Mentored 3 undergraduate students

- **Industry**
  - Responsible for hiring, supervision, and performance review of three junior scientists
- **Science Administration**
  - University of Michigan's EXPLORE program mentor for undergraduates from underrepresented groups, 2010 through 2012
- **Consulting**
  - Effectively communicated and transferred complex technical information to junior personnel. Used expertise to assist junior personnel with problem solving.
- **Project management**
  - Empowered project staff to meet quality standards, use resources effectively and deliver tasks on time.

Professional Experience

- **Job Title** (Dates and location)
- I do X to understand Y
  - *Examined the fidelity of the group II intron reverse transcriptase, determined that it is the most faithful reverse transcriptase found to date.*
- Job-related accomplishments
  - *Additional detail / explanation of "Summary of Accomplishments"*
  - *Avoid redundancy*
- Advisor? - usually only if the name is known

Education

- Usually graduate school thru undergrad
- Don’t forget degrees and dates
- Have seen post-doc here, but more appropriate in work experience
- Don’t add things like FAES courses, OITE certificates etc…these should go under additional training

- Note on additional training---only list relevant and recent things, i.e. a microscopy course 10 years ago may not be appropriate

Skills and techniques

- List of relevant skills, methodologies, techniques, equipment
  - Grouped for easy identification
  - Not a laundry list

- Key in avoiding computer filters
  - ***Biochemistry*****:** protein purification, Western blotting, *in vitro* cell-free extracts, spectroscopy, electrophoresis
  - ***Cell biology*****:** cell culture (bacterial, insect, mammalian), flow cytometry, immunofluorescence
  - ***Microscopy*****:** light microscopy, epifluorescence microscopy, confocal microscopy
  - ***Molecular biology***: gene cloning (prokaryotic and eukaryotic), PCR, Southern blotting

Skill Sections for Resumes

- **Team**
- **Communication**
- **Collaboration**
- **Leadership**
- Technical
- Supervision/Management
- Professional
- Computer
- Service
- Languages

Team skills

- What we normally see:
  - Nothing
- What we should see:
  - Participated in lab meeting, exchanged ideas and constructive criticisms
  - Organized collaborations by setting meeting times and agendas, promoting scientific discussions, and ensuring that deadlines were met
  - Integrated a team of 2 biochemists and 2 neuroscientists to solve a challenge resulting in a change of procedure that decreased the timeline of the project 3-fold
  - Managed 4 technicians, 3 graduate students, 9 undergraduates and many lab rotations students
  - Participated in hiring new lab personnel

Improve your document

- Reverse chronological order
- Be specific, avoid jargon
- Use their words to hit the keywords
- Results with quantifiable measures
- Action packed verbs
- Speling and profreedin
- Organize

Organizing your document

- Name on each page
- Last updated
- Your name in file names
- PDF vs. Word doc

- Network
- Follow-up

- Font (11 pt Times Roman)
- Bolding may detract reader
- Bullets help to organize
- Margins (1 inch)
- Plenty of white space
- Page Numbers

Cover letters

- **Part 1**
  - How you found the job
  - Basic info on yourself
  - Say something nice about the organization (homework)
- **Part 2**
  - Why you are interested in position/employer
  - How you best fit the position
  - Match the wording
- **Part 3**
  - Interested in interviewing
  - Thank them for their consideration
  - Follow-up

Homework on the To: Note the name and degree

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Dear Hiring Manager,

I saw your ad for a Product Manager/Developer: RNA Enzymes/PURE-6071RG on the New England Biolabs website. I am currently a postdoctoral fellow in Marlene Belfort's lab at the Wadsworth Center, New York State Department of Health.

I have extensive experience in restriction enzyme biochemistry, and have had ongoing collaborations with scientists at NEB, including Paul Riggs. I am very familiar with the science at NEB, and am extremely impressed by not only the high quality products that the company produces but also with the academic atmosphere of the research and development centers. My specialty is in protein-nucleic acid interactions, with an emphasis in exploring enzyme mechanisms. As a postdoc I expanded my scientific skills to include RNA biology, including RNA purification and analysis. I have a strong background with high quality *in vitro* protein synthesis and purification, including media modifications and preparations of quantities needed for biophysical and structural characterizations. I excel in improving and developing research programs as seen by incorporation of novel techniques to examine DNA binding and cleavage by restriction enzymes and the use of new system to monitor the fidelity of the group II intro reverse transcriptase. I took a strong leadership role in the lab to ensure coordination of chemical inventory and ordering systems. I have excellent organizational skills as noted by completion of 8 peer reviewed papers with the participation of technicians and students that I supervised. Additionally, I have a strong attention to detail. My diverse background in DNA/RNA-protein biochemistry would be a terrific fit for this position.

I look forward to continuing this conversation in an interview. I will contact you by X date to follow up on this application. Please feel free to contact me at anytime, the best method is by email atgghhg. Thank you for your consideration.

HOMEWORK!

- Find a job ad that you like
- Create a resume for that job
- Bring it with you on April 10 to the next Industry Careers program
  - We will peer review documents
  - We will also select a few to talk about in the group

Resources

- myidp.sciencecareers.org/ - great online assessment and career planner for science related career paths
- SciPhd.com - good online assessment for industry jobs
- If you are an NIH trainee come to the Career Center
  - Make an appointment online
    - **Brad** - industry careers
    - **Anne and Amanda** - Career questions, all paths
- OITE careers BLOG
- Web Articles
  - Science careers - especially stuff by Dave Jensen
  - NatureJobs
  - BioSpace.com
  - ACS Careers Blog (and ACS website)
- Books
  - Career Opportunities in Biotech and Drug Development (Freedman)
  - Alternative Careers for Scientists (Robbins-Roth)
  - Non-traditional Careers for Scientists (Kreeger)

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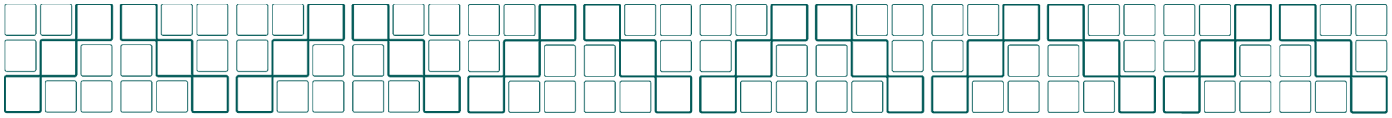
More resources

- Previous videos on industry jobs:
  - An Overview of Careers in Industry for PhD Scientists (10/5/2009)
  - The Industry Job Search: Navigating the Application Process (12/7/2009)
  - Resumes and Cover Letters for Industry (11/18/2008)
  - Interviewing outside the Ivory Tower (12/2/2008)
  - Business Etiquette (NIH only) (3/25/2009)
  - Making the Transition to Industry (4/6/2010)
- Videos on specific career paths:
  - Careers in Science Education and Outreach: A "How to" Workshop (11/23/10
  - Careers in Regulatory Affairs: Second in the "How to" Series (11/23/10)
  - Careers in Tech Transfer: Third in the "How to " Series (2/16/11)
  - Careers in Science Policy: Fourth in the "How to" Series (2/16/11)
  - Careers in Global Health: Fifth in the "How to" Series (4/13/11)
  - Careers in Science Writing: Sixth in the "How to Series" (4/30/2012)
  - Using LinkedIn Effectively: Seventh in the "How to" Series (4/30/2012)
  - Careers in Grants Management: Eighth in the "How to" Series (6/5/12)
  - Careers in the Federal Government: Ninth in the "How to" Series (7/18/12)

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More goodies

- The rest of the slides are just more info for you and were not discussed in the seminar.

Questions to ask yourself

- What were my job responsibilities?
- What were my major accomplishments?
- What skills did I develop?
- What decisions did I make?
- How did I work with and motivate people?
- How can I quantify my results?
- How did I communicate in my job?
- Did I assume a leadership position?
- How did I make a difference in the position?

General Thoughts

- Keep a master activities/accomplishments document as you go along
- There is no template, but your document must be clean, crisp, and easy to read
- Real estate matters –put most important things at the front
- Double and triple-check for typos
- Lots of eyes are helpful –your faculty, mentors, colleagues
  - But appreciate opinions will vary and data argue that there are many “right ways”
  - Best opinions are from “insiders” with a lot of experience

Collaboration

- What we normally see:
  - Collaborated with other labs
- What we should see
  - Managed collaboration both internal and external to lab
  - Ensured data transfer, project completion, idea exchange, etc
  - Developed communication schedule

Managerial Skills

- What we normally see:
  - Mentored undergrads
- What we should see:
  - Managed 4 technicians, 3 graduate students, 9 undergraduates and many lab rotations students
    - Project design, project accessibility, goal setting, supervision
  - Participated in hiring new lab personnel
  - Promoted lab social interactions
  - Responsible for ordering reagents, equipment and new instrumentation for entire lab.
  - Negotiated and solicited bids from vendors to ensure cost savings
  - Organized reagents and equipment to ensure quality work environments
  - Participated in lab budget management

Leadership

- What we normally see:
  - President of graduate club
  - Nothing
- What we should see:
  - Coordinated annual vendor shows, resulting in a $3000 profit for the organization.
  - Organized student sponsored seminar series, this included one seminar speaker per semester and the Annual Women in Science Seminar.
  - Developed non-traditional career forum, inviting and coordinating visits for 6 speakers.
  - Assisted in planning welcome week events for new graduate students.
  - Planned departmental social activities.

Communication Skills

- What we normally see:
  - Excellent verbal and written communication skills
- What you should say:
  - Presented X posters and Y talks at (Inter)National meetings
  - Presented talks to various audience type (examples)
  - Wrote SOPs, journal articles, reviews, lay-audience articles, etc.
  - Edited lab grant and manuscripts before publication
  - Facilitated a group discussion as seen by….
  - Negotiated a …..
  - Speak X, a valuable asset in this job

Career Symposium Committee Member

- Industry
  - Developed novel strategy for workshop designed to expose scientists to careers in the biotechnology industry. Identified experts, gained stakeholder buy-in, implemented plans in accordance with time-lines and budget restrictions.
- Science Policy
  - Interpreted and applied administrative guidelines regarding financial management, procurement, facilities use. Facilitated communication between established career professionals and junior scientists
- Science Administration
  - Organized career and professional development symposium attended by 4,000 graduate students and postdoctoral scientists. Symposium highlighted 16 different career tracts and included 25 workshops on various professional development skills including networking, using linked-in, and preparing resumes.

Using Transferable Skills List

"Explain complex or difficult concepts in basic terms and language"

Developed an on-line module to explain epigenetics concepts, specifically DNA methylation and histone modification, for new employees joining our research lab. Explained concepts by relating dietary influences on gene regulation. The module quickly became our new employee's favorite part of orientation.

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Translating Your Research Skills

- Editing
- Speaking effectively
- Writing concisely
- Identifying problems
- Identifying resources
- Gathering information
- Solving problems
- Setting goals
- Analyzing
- Evaluating
- Managing collaborations
- Mentoring/supervising
- Delegating responsibility
- Teaching
- Motivating others
- Organizing
- Attending to details
- Initiating new ideas

Dissecting a Job Ad

- **Product Manager/Developer: RNA Enzymes/PURE - 6071RG**

  Qualified candidates are invited to apply for the position of Product Manager for NEB's growing *In Vitro* Protein Synthesis and RNA product line. This position will report to Production, but will involve a significant amount of product development and interaction with Production and Research groups.

  Responsibilities:
- Manufacture and qualify in vitro protein synthesis and/or RNA product line.
- Coordinate all processes from manufacturing to inventory control and customer support.
- Improve and develop related products as needed.
- **The ideal candidate will:**
- Have strong hands-on experience with protein purification and enzymatic assays.
- Demonstrate excellent analytical and organizational skills.
- Be efficient, thorough, and have attention to details.
- Have excellent verbal and written communication skills.
- **Qualifications:**
- B.S. or advanced degree in Biochemistry, Molecular Biology or related fields.
- Please forward your C.V. and statement of interest to: xxx2xxx.com
- Attn: Job Code 6071RG